Vermont Forest Health

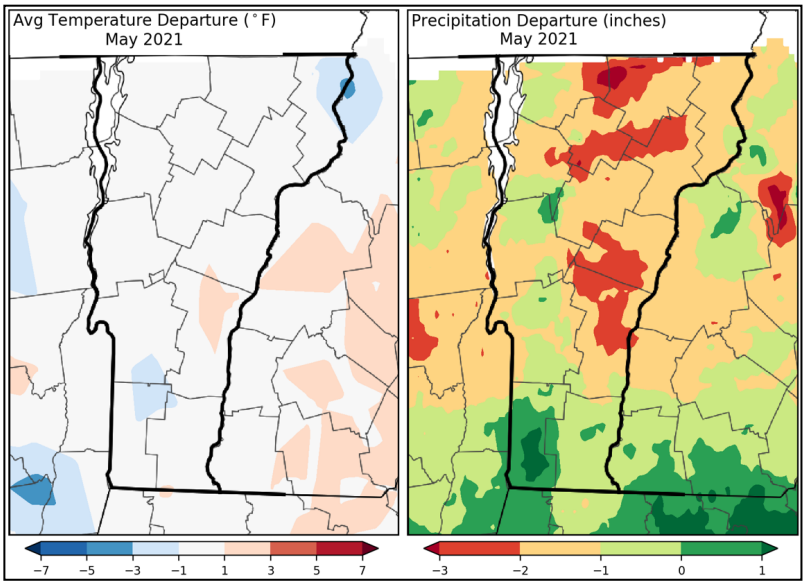
Insect and Disease Observations — May 2021

Department of Forests, Parks & Recreation
May 2021 vtforest.com

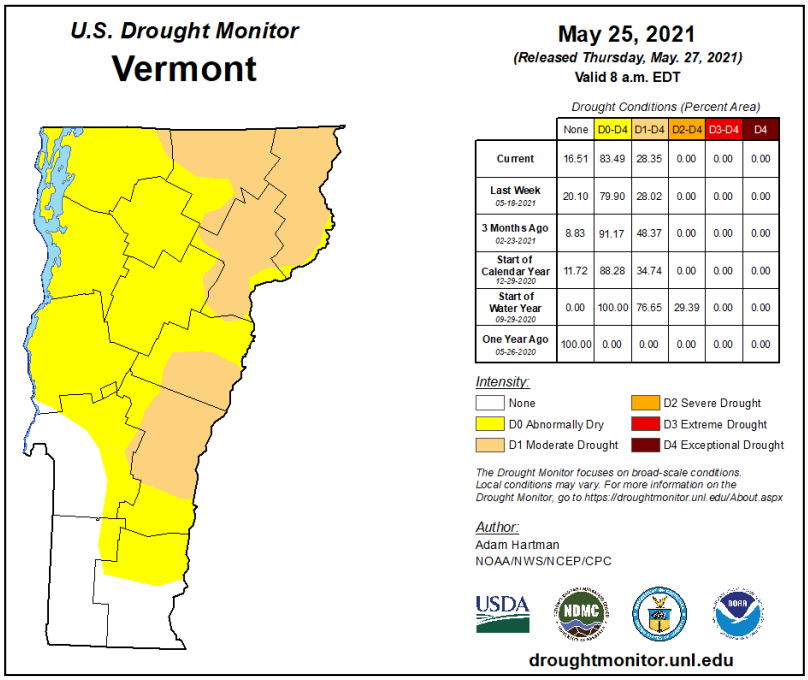
Weather Recap

The end of May marks the unofficial start of summer. On average, this month was warmer and dryer than May of 2020. State-wide temperatures averaged 53.9°F, which was 1.2 degrees warmer than May of last year. Statewide precipitation averaged 2.57 inches, which was 0.39 inches less than May of last year.

The U.S. Drought Monitor listed most of Vermont as being in a moderate drought (75.01%) starting on May 4th, with the remainder of the state being listed as abnormally dry (24.99%). Periods of isolated rainfall early in the month aided in reducing drought conditions across the state. By May 11th, the drought listing changed to Vermont being mostly abnormally dry (51.89%), with the eastern part of the state being listed as moderate drought (28.01%) and the southern part of the state listed as no drought (20.1%). By the end of this month, drought severity remained steady, with most of Vermont listed as abnormally dry (55.14%), with the eastern part of the state being listed as moderate drought (28.35%) and the southwestern part of the state listed as no drought (16.51%).



Temperature and precipitation departure from normal. Maps and data: Northeast Regional Climate Center.



Vermont drought conditions at the end of May. Map and data: U.S. Drought Monitor.

Fire Update

Abnormally dry conditions in May increased wildland fire potential. One fire of note occurred in Killington, VT in mid-May. This fire burned over 25 acres of surface fuels on steep terrain. Just before 6:00 pm on Saturday, May 15, State Forest Fire Supervisor Lars Lund was contacted by Tom Rock, Killington Town Forest Fire Warden, about a fire burning on a steep slope near Route 4 at River Road in Killington. At the time, there were 4-5 volunteer fire departments in addition to Killington Fire Department on the scene, working the fire.

Steep terrain at Killington fire. Photo credit: FPR Staff.

On Sunday, fire department personnel from Killington, Pittsfield, Stockbridge, Bridgewater, Bethel, Barnard, Rutland Town, and Rutland City were at the fire. This fire had burned in a mosaic pattern under a hemlock overstory and had burned hot up through hardwood and open areas. The top of the fire and the right flank were the most active parts of the fire. By the afternoon, most of the fire had been knocked down, with some larger fuels still smoldering in the interior of the fire.

A fireline was constructed through duff along the top of the fire where there was unburned fuel between the fire's edge and some slightly less steep terrain, and firefighters assisted in extinguishing remaining hot spots.

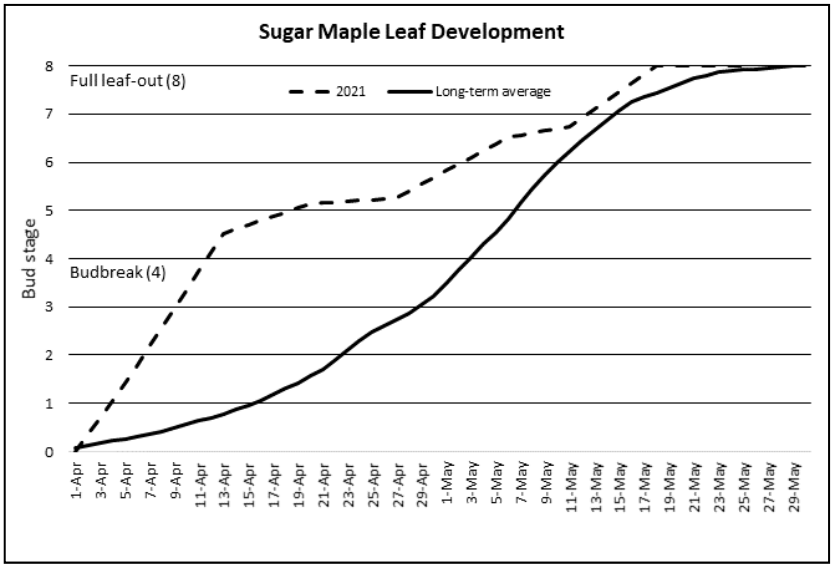
Aftermath of Killington fire. Photo credit: FPR Staff.

The fire was estimated to be over 25 acres. At least 45 firefighters were working the fire on Sunday, plus personnel at the ICP and at least 10 all-terrain vehicles of various sizes and configurations transporting personnel and equipment, and pumping water. There were no injuries reported and the firefighters did an exceptional job putting in the fireline. Vermont Emergency Management was notified of FPR's response. The Killington fire was deemed out as of Sunday evening.

Unfortunately, the fire was not completely extinguished and increased winds Wednesday reinvigorated the fire and it jumped over the existing fire line. Approximately 50 firefighters were on scene the following Wednesday representing around seven fire departments.

Spring Leaf Out

Sugar maple trees were monitored for the timing of budbreak and leaf out in the spring at the Proctor Maple Research Center in Underhill as part of the Forest Ecosystem Monitoring Cooperative. Sugar maple leaf out expansion was on May 15th, four days earlier than the long term average.



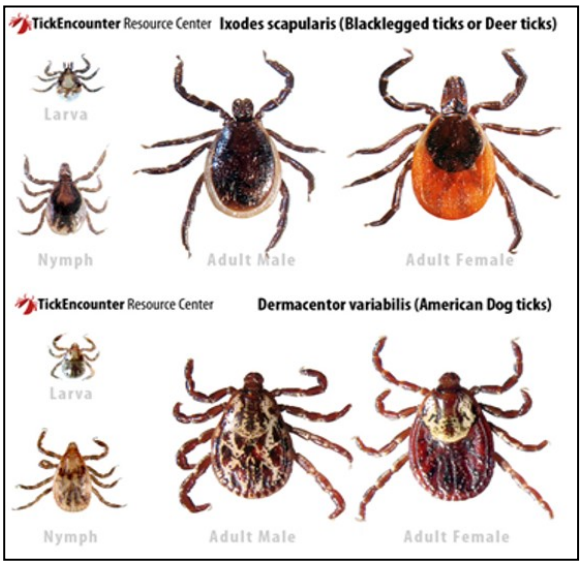
Sugar maple leaf development. Graph and data: FPR Staff.

Insect and Disease Observations

Gypsy moth caterpillars emerging from egg masses. Photo credit: FPR Staff.

Gypsy moths (*Lymantria dispar dispar*) have been observed hatching from egg masses early this month across the state. By the end of the month, multiple reports of defoliation of hardwood trees were reported in the Champlain Valley. This invasive insect is a voracious feeder and consumes foliage of more than 300 trees and shrubs in the eastern U.S. Caterpillars and unhatched egg masses can be scraped and submerged in soapy water or squished until you hear a "popping" sound. The most commonly recommended pesticide treatments contain the bacteria, *Bacillus thuringiensis kurstaki* (Btk). Btk is applied to foliage where gypsy moth larvae will consume it, and are then killed. This strain of bacteria is specific to moth larvae, and its toxic properties get activated when it interacts with particular enzymes in the caterpillar's digestive tract. Gypsy moth feeding will continue through the growing season and more reports of defoliation are expected.

Blacklegged (deer) ticks (*Ixodes scapularis*) and American dog ticks (*Dermacentor variabilis*) continue to be reported across the state. Ticks are more commonly found in wooded and grassy habitats, however, they can also be prevalent in urban and coastal areas. The best way to prevent tick-borne diseases is to prevent tick bites from occurring. If you find a tick on your body, promptly remove it. Check out this video showing the right way to remove a tick. For more information about ticks in Vermont, check out the VT Department of Health and the VT Agency of Agriculture, Food & Markets websites.



Life stages of black-legged ticks (top) and American dog ticks (bottom). Photo credit: University of Rhode Island.

Eastern tent caterpillars (ETC, *Malacosoma americanum)* have been observed across the state early this month. This native hardwood defoliator overwinters on trees in the egg stage, and upon hatching, start to create silk nests or "tents" in the crotches of infested trees. ETC is a hardwood defoliator, although they do prefer fruit trees such as cherry, apple, and pears. Although tents and feeding can be unsightly, trees defoliated by ETC can typically survive several years of defoliation. When in reach, these tents can be broken up using sticks, allowing birds and other predators to eat the caterpillars.

ETC tent in the crotch of a sapling. Photo credit: FPR Staff.

Pine bark adelgid infested tree. Photo credit: FPR Staff.

Pine bark adelgid (*Pineus strobi*) was observed on eastern white pine trees in northern parts of the state. This introduced insect uses its piercing-sucking mouthparts to consume phloem tissue on the bole and branches of its hosts. Although damage is typically low, this insect can cause reduced growth or stunted branches in heavily infested trees. These adelgids cover themselves in a white woolly wax for protection against predators and environmental conditions.

Pear thrips (*Taeniothrips inconsequens*) damage has been observed on sugar maples following leaf out in northern Vermont. Pear thrips feeding causes leaves to be distorted and dwarfed and will often have a mottled yellow-green-brown appearance. High infestation levels can cause thinned crowns and premature leaf drop. For more information, visit VTinvasives.

Pear thrips damage. Photo credit: R. Kelley.

White pine blister rust (*Cronartium ribicola*) is a non-native pathogen that causes cankers, dieback, and mortality of infected eastern white pine trees. This pathogen requires two hosts to complete its lifecycle, eastern white pine and *Ribes* spp. During spring, the characteristic blisters, "aecia", are present on infected trees. These fruiting bodies typically appear around branch nodes and are the fungal stage that is responsible for infecting the alternate host ribes. Since this pathogen requires two hosts to complete its lifecycle, reducing the presence of one species can reduce its population and severity.

Aecia fruiting bodies on an eastern white pine sapling. Photo credit: FPR Staff.

Foraging For Fungi

Wine cap stropharia, (*Stropharia rugosoannulata*) is a springtime edible that will start to be visible this time of year. This fungus is a saprotroph and can commonly be found growing out of mulch beds. Its cap is convex and reddish-brown when immature and matures flat, with a pale brown to yellow-brownish color. The cap is 4-15 cm across, and often has fragments of the partial veil on its margins and top. Pale grey to purple-black gills are attached to the stem and give off a purple-brown to purple-black spore print. This mushroom turns olive green with KOH. The stem of this mushroom is 8-20 cm long and 1-3 cm thick and is white to yellow-brown in color. The stem will often have a white annulus or "ring" which is a remanent of the partial veil. Due to the unique gill and spore sprint color, this mushroom has no reasonable lookalikes.

Young (right), maturing (left) and mature (middle) wine cap stropharias. Photo credit: John Plischke III.

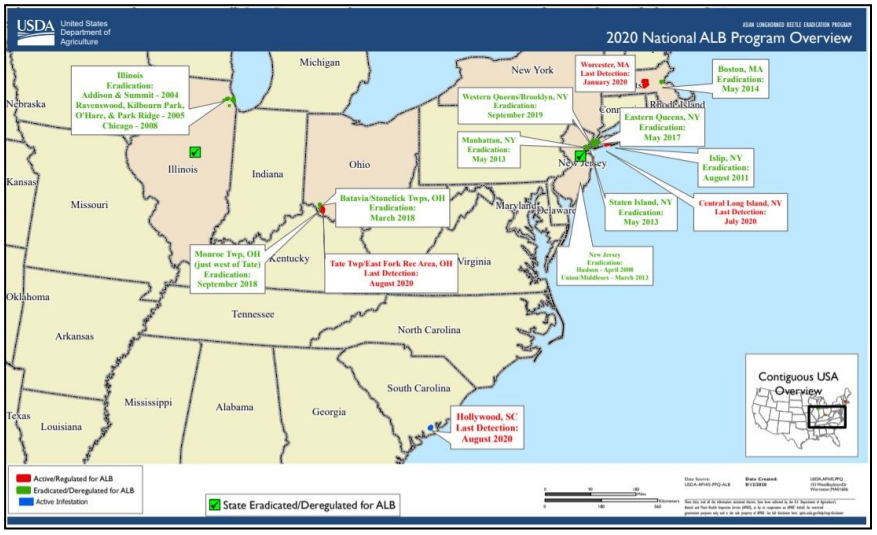
Clusters of mica cap mushrooms (*Coprinellus* spp.). Photo credit: Michael Kue, Mushroomexpert.

Mica cap mushrooms (*Coprinellus micaceus*) is another springtime edible found this month. This fungus is a saprotroph and can be found growing in clusters out of decaying wood. Its cap is 2-5 cm, honey brown to amber in color and oval when immature, and matures into a pale-brown to pale-amber bell shape. Gills are either attached to the stem or not attached, and can range in color from pale brown, brown, or black as the mushroom matures. These gills are partially deliquescent, meaning that they turn into black ink. Its stem is 2-8 cm long and 3-6 cm thick and is white. This fungus has caulocystidias, which causes the stem to feel like it is covered in fine soft hairs. Under a microscope, this mushroom has mitriform-shaped spores. This mushroom has an edible lookalike, *Coprinellus truncorum* that shares almost all identifying features with *C. micaceus*. The main differentiating feature is that this mushroom should lack caulocystidias, and therefore has a smooth stem. Under a microscope, this mushroom will have elliptical-shaped spores. Due to the similarities between these two *Coprinellus* species, research is being conducted to see if they are genetically the same species.

As with all wild mushrooms, there are risks to eating and misidentifying them which can be both dangerous and fatal. Always ensure you have the correct identification before consuming any wild edible. ***The State of Vermont accepts no liability or responsibility for the consumption and/or misidentification of any mushrooms mentioned in this publication.***

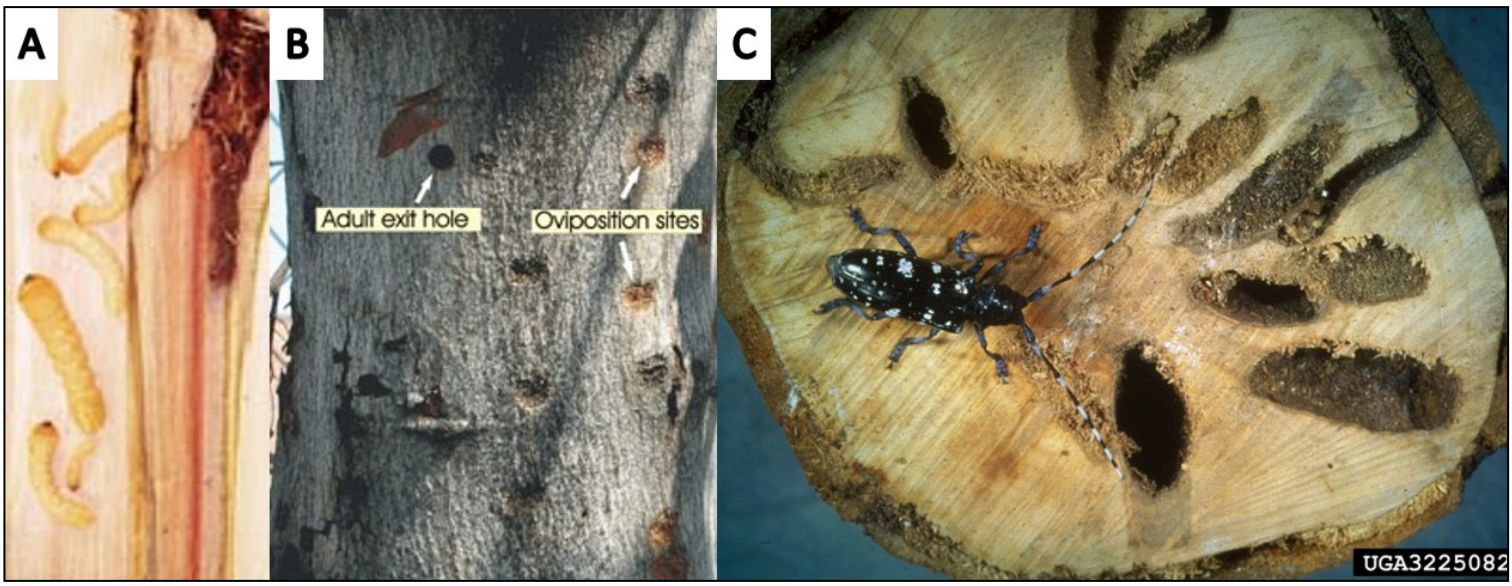
Pests in the Spotlight: Asian Longhorned Beetle

Asian longhorned beetle (ALB, *Anoplophora glabripennis*), an invasive wood-boring beetle that was detected in the United States in 1996, and **has not yet been detected in Vermont.** This insect feeds on hardwood species including but not limited to, maple, ash, birch, elm, and poplar trees, making it an insect of high concern to our northern hardwood forests. ALB has been reported in New York (1996), Illinois (1998), New Jersey (2002), Massachusetts (2008), Ohio (2011), and South Carolina (2020).



2020 National ALB Program Overview Map. Map and Data: U.S. Department of Agriculture's Animal and Plant Health Inspection Service.

ALB eggs are laid in oviposition (egg laying sites) on the tree bole and branches, and when larvae emerge, they burrow through to and then consume the heartwood of infested trees. As the larvae develop, it creates pupae chambers, and once mature, tunnels out of the tree to find a mate and reproduce. This burrowing causes girdling and dieback which can lead to mortality of infested trees. Adult ALB emerges from dime-sized exit holes (3/8-3/4 inches) and ranges between 1-1.5 inches long and approximately 0.5 inches wide. They have a glossy black body with white spots and long black and white striped antennae that range between 1.3-1.5 times larger than their body. These adults can fly short distances on their own but travel much further through infested shipping materials and transported firewood. For more information on ALB, or to report a sighting, visit VTinvasives.



A: ALB Larvae. Photo credit: Kenneth R. Law, USDA APHIS PPQ, Bugwood. B: Adult exit holes (left) and Oviposition sites (right). Photo credit: Dudley Conservation Commission. C: Adult ALB on a cross section showing internal damage. Photo credit: E. Richard Hoebeke, Cornell University, Bugwood.

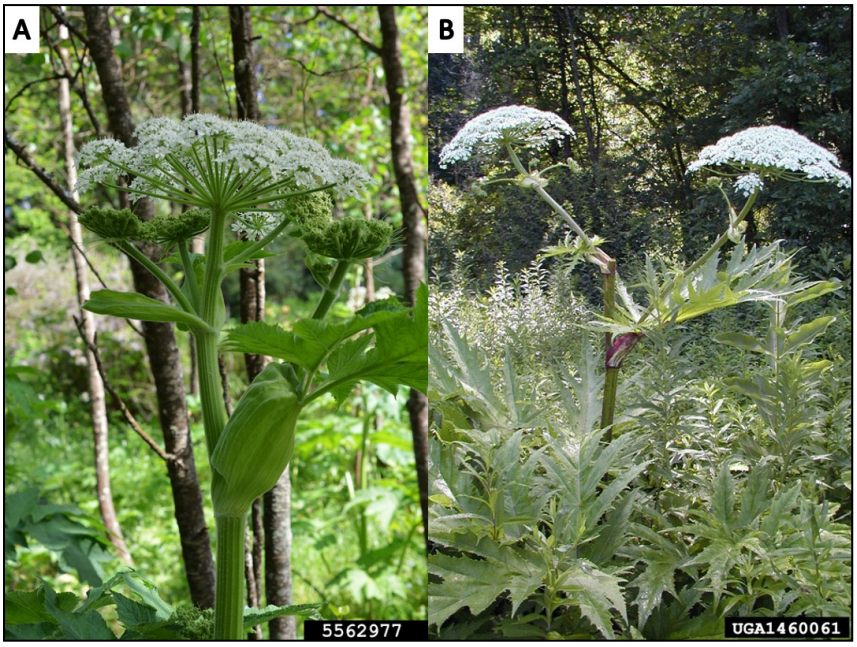
Early Detection Species: Invasive Giant Hogweed

As May and June march towards summer, the flat-topped white flowers of a common local plant, American cow-parsnip (*Heracleum maximum*) can be found blooming. This remarkable example of the carrot family (Apiaceae) often becomes the target of ire by well-meaning people, who mistake its large size as an indication that it is the rare invasive plant, giant hogweed (*Heracleum mantegazzianum*).

Giant hogweed evolved in the Caucasus region, an area where eastern Europe and southern Russia intersect. Its giant stature enamored collectors in Europe and North America in the 1800s, who planted it as showpieces in Victorian gardens. This plant has been noted growing outside of this range and escaped from cultivation across northern Europe, Canada, United States, Australia, and New Zealand.

Giant hogweed leaves can grow up to 5’ across. Photo credit: Terry English, USDA APHIS PPQ, Bugwood.

Giant hogweed is a monocarpic perennial herb, with compound leaves up to 5’ across with deep incisions down to the midrib. Populations can be found in fields, along waterways, forest openings, and disturbed habitats. The invasive nature of this plant is observed by its readiness to escape cultivation, prolific seed production, impacts to vegetation diversity and soil stability, and poses a serious human health concern.



Flat-topped flower heads of local American cow-parsnip (**A**), compared to the umbrella-shaped flower heads of invasive giant hogweed (**B**). Photo credit: Shaun Winterton, Aquarium and Pond Plants of the World, Edition 3, USDA APHIS PPQ, Bugwood; Donna R. Ellis, University of Connecticut, Bugwood.

While contact with both American cow-parsnip and giant hogweed can cause a rash or a burn, giant hogweed sap can trigger a severe chemical reaction on exposed skin, and even cause blindness. Even just brushing up against this plant can transfer sap. This reaction is more worrisome than exposure to wild parsnip, wild chervil, or American cow-parsnip (all of which are members of the carrot family), where you must break the plant tissue to come in contact with the sap.

Giant hogweed is a federally listed noxious weed and is, therefore, part of Vermont’s Noxious Weed Rule. With only a handful of locations known across the state, giant hogweed is also considered an early detection species. If you find locations of this plant anywhere in Vermont, please report them using the Report It! tool on the VTinvasives.org website.

Here are a few quick ways to distinguish the local plant, American cow-parsnip from the invasive plant, giant hogweed:

- While both plants have large white flower heads, in profile giant hogweed flowers look like an umbrella, and American cow-parsnip are flat-topped.
- Both plants can reach heights taller than people, but giant hogweed can grow over 14’ in height (about the height of a one-story house).
- Giant hogweed will have coarse white hairs at the base of the leaf stalk, and American cow-parsnip will be hairy but lack these almost “beard-like” hairs.
- The flower head for both plants is made up of individual rays, and giant hogweed will average 50+ rays while American cow-parsnip will average 15-30.

Giant hogweed stems have extensive purple splotches, but the purple stem is not a good species indicator. Photo credit: Rob Routledge, Sault College, Bugwood.

To learn more about giant hogweed, check out VTinvasives.org and these additional resources:

- Mistaken Identity? Invasive Plants and their Native Look-Alikes
- New York Invasive Species Information
- CABI
- Department of Environmental Conservation, New York

Invasive Plant Phenology

Volunteers across the state record and report invasive plant phenology during the second full week of every month. This data allows communities to better time best management treatments. The observations below are from May 10th-14th, 2021. If you would like to be involved in this effort, please contact Pauline.Swislocki@vermont.gov.

Addison County— Leaf out: garlic mustard; Flowering: garlic mustard.

Chittenden County— Bud break: Asiatic bittersweet, common buckthorn; Leaf out: Amur maple, common buckthorn, garlic mustard, goutweed, Japanese barberry, Japanese knotweed (shoots 2’-4’ tall), multiflora rose, Morrow’s honeysuckle, Norway maple, shrub honeysuckles, yellow flag iris; Flower buds: Amur maple, common buckthorn, garlic mustard, Japanese barberry, Norway maple shrub honeysuckles; Flowering: garlic mustard, shrub honeysuckle; Fruiting: garlic mustard.

Franklin County– Leaf out: common buckthorn.

Grand Isle County– Flowering: garlic mustard, Morrow’s honeysuckle, Norway maple.

Lamoille County– Leaf out: Japanese knotweed (shoots 6”-2’ tall).

Washington County– Leaf out: Japanese knotweed (shoots 6” tall).

FORESTS, PARKS & RECREATION VERMONT AGENCY OF NATURAL RESOURCES

For more information, contact the Forest Biology Laboratory at 802-505-8259 or:

Windsor & Windham Counties	Springfield (802) 289-0613
Bennington & Rutland Counties	Rutland (802) 786-0060
Addison, Chittenden, Franklin & Grand Isle Counties	Essex Junction (802) 879-6565
Lamoille, Orange & Washington Counties	Barre (802) 476-0170
Caledonia, Orleans & Essex Counties	St. Johnsbury (802) 751-0110

Forest health programs in the Vermont Department of Forests, Parks, and Recreation are supported, in part, by the US Forest Service, State and Private Forestry, and conducted in partnership with the Vermont Agency of Agriculture, Food, and Markets, USDA-APHIS, the University of Vermont, cooperating landowners, resource managers, and citizen volunteers. In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discrimination on the basis of race, color, national origin, sex, age, or disability.